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Handbook of Human Tissue Sources: A National Resource of Human Tissue Samples

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Reviewer's comments

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**SUMMARY OF TISSUE BANKS/REPOSITORIES
BY TISSUE TYPE**

Table C.1
Summary of Tissue Banks/Repositories by Tissue Type

Tissue Group/ Resource	Number of Specimens/ Tissue Type(s)	Other Data	Limitations
Adipose			
National Human Adipose Tissue Survey	12,000 samples of adipose tissue from autopsied cadavers and surgical patients		
Brain			
Stanley Foundation Brain Collection	>200 brains from individuals with schizo- phrenia, bipolar disorders, severe depression, and normal controls Brains are half frozen, half formalin-fixed		
Stanley Foundation Neuro- pathology Consortium	60 brains: 15 each from individuals with schizophrenia, bipolar disorder, severe depression, and normal controls	Brains are distributed coded; on disclosure of results to consortium, codes will be supplied to researchers	
Harvard Brain Tissue Resource Center/Harvard Psychiatry Brain Collec- tion- McLean Hospital	>5,000 brains from individuals mostly with Alzheimer's, Huntington's, or Parkinson's diseases Specimens are fresh quick-frozen tissue blocks and coronal sections, passive frozen hemi- spheres, or formalin-fixed hemispheres (researchers can request custom dissection of specified anatomic regions of passive frozen or formalin-fixed hemispheres)	Age, gender, cause of death, postmortem time, and a neuropathology report (clinical records are available for approved investigators to read for themselves if they wish to visit the brain bank facility)	None specified

Table C.1- continued

Tissue Group/ Resource	Number of Specimens/ Tissue Type(s)	Other Data	Limitations
Alzheimer's Disease Research Center at Duke University- Kathleen Price Bryan Brain Bank	>600 brains from Alzheimer's patients or related causes of dementia >150 brains from patients with other neuro- logical disorders (ALS, Huntington's, muscu- lar dystrophy) 150 normal brains Fixed/frozen hemispheres, paraffin blocks, histological slides	Limited clinical information Demographic information	No distribution to third parties No cost except shipping fees
Taub Center for Alzheimer's Disease Research Tissue Bank	300 flash-frozen and fixed brain tissue specimens from patients with neuro- degenerative disorders and normals Also store peripheral blood cells and DNA from patients with these disorders		
Boston University Alzheimer's Disease Center- Tissue Resource Center	Normal, demented, and diagnosed Alzheimer tissue samples available from frontal lobe, temporal lobe, parietal lobe, occipital lobe, motor lobe, somato-sensory lobe, visual lobe, olfactory cortex, insular cortex, spinal cord, cerebellum, putamen, prefrontal cortex, cau- date, amygdala, hippocampus, and thalamus Specimens are flash-frozen or plp immersion fixed Brain endothelial cell cultures from rapid postmortem samples available	Extensive neurological data Demographic data	Specimens are for research purposes only; no portion of tissues may be given to third parties Any publication resulting from or related to use of tissues must acknowledge BU-ADC

Table C.1- continued

Tissue Group/ Resource	Number of Specimens/ Tissue Type(s)	Other Data	Limitations
Brain Bank- Medical College of Georgia	24 brains: 20 are Alzheimer's brains and the others are Parkinson's, other Lewy body disorders, and normals 1 hemisphere is sectioned and frozen, the other hemisphere has 18+ regions sampled with duplicative blocks fixed either in 10% NBF or 70% ETOH; some are paraffin-embedded Blood and DNA specimens from 138 individuals (48 Alzheimer's; 50 neurologic controls; the rest from different neurological disorders)	Some demographic data Clinical data on recently acquired cases	Does not provide tissues for commercial uses Shipping costs must be paid
HealthPartners Human Brain Bank	>2,000 frozen brain specimens from cases of Alzheimer's, Parkinson's, multi-infarction dementia, dementia with Lewy bodies, Pick's disease, unclassified dementia 150 normal controls	Sex, age, neuropathological diagnosis, and clinical diagnosis	No distribution to third parties or use in creating cell lines or commercial uses outside of center's research aims Collaboration usually required Other confidentiality restrictions and assurances that funds flow back into the research from any commercial collaborators Depends on circumstances- may be no cost to individuals, but pharmaceutical companies are required to pay collection, storage, and shipping costs
State of Florida Brain Bank	>1,000 brain specimens Fixed or frozen	Clinical data, age, sex, and race	Acknowledgment of tissue source Shipping costs must be paid
NIMH Brain Bank	450 specimens, mostly frozen; some are formalin-fixed, some are half frozen/half fixed	Demographic and clinical data	Protocol required; no commercial uses

Table C.1- continued

Tissue Group/ Resource	Number of Specimens/ Tissue Type(s)	Other Data	Limitations
Southern Illinois University School of Medicine's Center for Alzheimer's Disease Brain Bank	More than 400 brains, fixed and frozen (avg. 20 brains collected per year)	Age, sex, clinical diagnosis	Collaboration required
Michigan Alzheimer's Disease Research Center Brain Bank	>300 frozen brains	Clinical and basic demo- graphic data	Brain specimens are only available to qualified investigators
Blood			
POG- Acute Lymphoblastic Leukemia Cell Bank	Thousands of frozen cell suspensions from leukemia patients (avg. 500-600 cases per year)	Only information requested for project type will be disclosed if approved	Cells may only be used for proposed research project; no subsequent redistribution to other investigators or use for other projects allowed without obtaining permission Collaboration required Cost depends on what is requested
NHLBI Blood Specimen Repository	1.5 million well-characterized specimens of serum, plasma, and cells from NHLBI- sponsored studies	Basic study information	Can only use samples for specified research protocols; may not dis- tribute samples to any other persons Investigator pays shipping costs Tissue source must be acknowledged
DoD DNA Specimen Repos- itory for Remains Identif- ication	2 million DNA specimens (2 bloodstain cards and 1 buccal swab for each individual)		

Table C.1- continued

Tissue Group/ Resource	Number of Specimens/ Tissue Type(s)	Other Data	Limitations
Breast			
NCI Cooperative Family Registry for Breast Cancer Studies (CFRBCS centers: Australian Breast Cancer Family Registry; New York Registry of Breast Cancer Families; Northern California Cooperative Family Registry; Ontario Registry for Studies of Familial Breast Cancer; Philadelphia Breast Cancer Registry; Utah Cooperative Breast Cancer Registry)	Paraffin-embedded breast and ovarian cancers, peripheral blood lymphocytes, serum, fresh-frozen tissue, and other biological fluids More than 5,600 families have been ascertained 2,458 affected specimens and 1,840 unaffected specimens available	Related family history (pedigrees) Clinical, demographic, and epidemiological data	CFRBCS repository and related databases are available for interdisciplinary and translational breast cancer research; material can only be used for approved protocol CFRBCS must be referenced in manuscript title Fees for processing, extracting, and shipping of specimens must be paid
NCI Cooperative Breast Cancer Tissue Resource (CBCTR) (CBCTR participating centers: Fox Chase Center, Philadelphia, Pennsylvania; Kaiser Research Foundation Institute, Portland, Oregon; University of Miami; Washington University, St. Louis, Missouri)	>8,200 cases of formalin-fixed, paraffin-embedded primary breast cancer tissues Cases represent all stages of disease from both sexes, all ages, and all races/ethnicities	Associated pathology and clinical data Demographic data Outcome/follow-up data	Specimens may be used for research purposes only; tissues and their products cannot be sold for commercial purposes nor distributed to third parties for purposes of sale Collaborations may be established between researchers and resource investigators to provide necessary additional services \$10/case plus a \$2 to \$10/slide charge plus shipping and handling fees

Table C.1- continued

Tissue Group/ Resource	Number of Specimens/ Tissue Type(s)	Other Data	Limitations
Breast Tissue Repository	21 breast tumor cell lines (18 derived from primary breast tissues; 3 from cultured metastatic breast tissues); 13 of the 21 tumor cell lines are paired cell lines with corresponding blood lymphocyte lines 25 primary cultures of normal epithelial and/or stromal mammary cells (5 correspond to tumor-derived cell lines)	Clinical and pathological features of breast tumors used for initiation of cell lines Extensive cellular, molecular, and genetic abnormalities data available Some pedigrees available	Tumor cell lines and lymphoblastoid cell lines available from ATCC; see ATCC limitations Costs are variable; see ATCC catalog
National Surgical Adjuvant Breast and Bowel Project (NSABP) Tissue Bank	Paraffin-embedded tumor specimens available from 25 NSABP trials; 40,479 cases enrolled; 18,529 with blocks or unstained slides; 36,242 with stained slides; and 17,240 with both	Complete clinical follow-up information as well as demographic information	Investigators with novel projects that conform to the research goals of NSABP may apply for tissue; priority given to NSABP membership institutions that regularly submit tissue blocks; tissue will not be distributed to commercial laboratories
Gastrointestinal			
Gastrointestinal Cancer at SPORE Johns Hopkins University	Banks wide range of tissue from resection specimens of colorectal and pancreatic cancer >716 colorectal cancer resections >142 colorectal adenoma resections >398 colorectal polypectomy specimens >47 hepatic resections for metastatic cancer >80 pancreatic cancer resections >107 fecal specimens >1,338 blood specimens	Family histories Food frequency data from questionnaire	

Table C.1- continued

Tissue Group/ Resource	Number of Specimens/ Tissue Type(s)	Other Data	Limitations
Inflammatory Bowel Disease Tissue Bank	>775 specimens from about 225 cases 150 cases are inflammatory bowel disease (Crohn's disease and ulcerative colitis); remainder are colon cancer, adeno- carcinoma, and diverticular disease	Final diagnosis Gross description of specimen Age and sex of patient	
Genital			
Gynecologic Tissue Group Tissue Bank	Benign, malignant, and normal ovarian and cervical tissue and serum from >3,176 patients Snap-frozen, formalin-fixed, OCT embedded primary tumors, touch imprint slides	Clinical Age, race Institutional pathology/ operative reports	
Hepatic			
NIST-EPA Human Liver Specimen Bank	661 normal liver specimens flash frozen	Demographic data Cause of death Histology report	Acknowledgment of tissue bank required Cost to be ascertained per proposal request
Liver Tissue Procurement and Distribution System	>1,500 frozen specimens from more than 60 types of diseased and normal livers	Demographic data Clinical data Family history (investigators should state areas of interest)	Samples are for NIH investigators only \$110 per sample with each additional sample costing \$15
Inclusive			
MGH Tumor Bank	>7,500 specimens have been collected and catalogued Normal and tumor specimens are snap-frozen	Verified pathologic diagnosis Some clinical information	\$20/specimen

Table C.1- continued

Tissue Group/ Resource	Number of Specimens/ Tissue Type(s)	Other Data	Limitations
National Pathology Repository	50 million microscopic slides; 30 million paraffin tissue blocks; 12 million preserved wet tissue specimens Specimens represent the entire spectrum of human disease		Requests for loan of material or provision of data for research purposes require submission and approval of research protocol; request from individuals and organizations other than the original contributor must be accompanied by a properly executed authorization signed by the patient or designated representative
Yale Program for Critical Technologies in Molecular Medicine	More than 10,000 frozen tissue samples; more than 3 million archived paraffin blocks from clinical cases	Age, Sex, pathology diagnosis	Approved protocol by the Yale Human Investigation Committee; Material Transfer Agreement from non-Yale investigators; fee-for-service costs
NCI Cooperative Human Tissue Network (CHTN)	From 1987-1996, supplied >100,000 specimens to ~600 investigators Provides biomedical researchers access to fresh surgical or biopsy specimens of normal, benign, precancerous, and cancerous tissues; only rare specimens are stored to anticipated future requests	Minimal demographic information Histology/pathology reports	Tissues provided by the CHTN are only for research purposes and cannot be sold or used for commercial purposes
Radiation Therapy Oncology Group	Collects 3-5 frozen tissue fragments per case from Phase III protocols of cervical, lung, head and neck, esophageal, and anal cancers; >290 specimens from ~70 cases (two-thirds of specimens from cervical cancer) Beginning in 1995, RTOG archived paraffin blocks and tissues from all RTOG Phase III trials; tissue from ~4,400 cases have been collected and stored	No clinical information released that might allow for patient identification or linkage to treatment or demographics	Frozen tissue for use in correlative and translational research; paraffin blocks and tissues for population-based studies

Table C.1- continued

Tissue Group/ Resource	Number of Specimens/ Tissue Type(s)	Clinical data	Other Data	Limitations
NCI AIDS Malignancy Bank (research centers: Ohio State University, University of California- San Francis- co, George Washington University, State University of New York, University of California- Los Angeles)	> 18,000 samples from >2,000 cases of HIV malignancy-related diseases Formalin-fixed paraffin-embedded tissues, fresh-frozen tissues, malignant cell suspen- sions, fine needle aspirate, cell lines Tissues include serum, plasma, urine, bone marrow, cervical and anal specimens, saliva, semen, and multisite autopsy tissues			Specimens may be used for research purposes only; specimens and their products shall not be sold or used for commercial purposes, nor be dis- tributed to third parties for purposes of sale or producing for sale Shipping cost of specimens must be paid
Tumor Bank Facility at the Herbert Irving Comprehen- sive Cancer Center	Tumors and tumor/normal pairs Members can request specific types of tissue for their research protocols Tissues are snap frozen			Users must be Herbert Irving Compre- hensive Cancer Center members
Brain and Tissue Bank for Developmental Disorders		Clinical data Demographic data		Tissue specimens may only be used for the specified study; research beyond that described in original request may only be carried out pursuant to another agreement signed by both parties; investigator shall not dis- tribute tissue to third parties Acknowledgment of Brain and Tissue Bank for Developmental Disorders required Investigator will provide Director with written summary every 6 months on receipt of tissue Shipping and handling costs plus \$50/ per tissue processing fees must be paid

Table C.1- continued

Tissue Group/ Resource	Number of Specimens/ Tissue Type(s)	Other Data	Limitations
<i>University of Maryland, Baltimore</i>	12,000 brain sections; 53 body fluids; 1,500 cardiovascular tissue; 1,300 endocrine tissue; 6,000 gastrointestinal tissue; 700 genital tissue; 1,600 hematopoietic tissue; 1,000 integumentary tissue; 1,800 musculoskeletal tissue; 2,000 respiratory tissue; 1,900 spinal cord tissue; 1,600 urinary tissue; 800 other types of tissue		
	Tissue samples are frozen or fixed		
<i>University of Miami</i>	All tissue types from 854 cases of 142 disease types and normals Myoblast, fibroblast and/or lymphoblast cell cultures exist from some cases		
<i>Children's Hospital of Orange County</i>	Currently have tissues and/or cultured cells from >800 patients of 253 disease types and normals		
DAIDS Specimen Repository			Collaboration required
<i>Multicenter AIDS Cohort Study</i>	Cells, serum, plasma, tissue (lymph node biopsies and autopsy tissues), semen, throat washings, fecal scrubs		
<i>Women and Infants Transmission Study</i>	Adult specimens include blood, urine, genital samples, Pediatric specimens include blood and urine		
<i>Women's Interagency Health Study</i>	Blood, oral/pharyngeal swabs, urine, vaginal and cervical swabs, cervicovaginal lavage fluids		

Table C.1- continued

Tissue Group/ Resource	Number of Specimens/ Tissue Type(s)	Other Data	Limitations
<i>HIV Network for Prevention Trials</i>	Serum, plasma, peripheral mononuclear cells, genital tract secretions, saliva (HIV strains isolated from these tissues also available)		
<i>Pediatric AIDS Clinical Trials Group</i>	Serum, plasma, peripheral mononuclear cells, culture supernatants, lymph node biopsies, tissues, urine, and other body fluids		
<i>Adult AIDS Clinical Trials Group</i>	Serum, plasma, peripheral blood mononuclear cells, culture supernatants, lymph node biopsies, tissues, urine, and other body fluids		
<i>AIDS Vaccine Evaluation Group</i>	Serum, plasma, peripheral mononuclear cells, genital tract secretions, saliva, and tears		
<i>Division of AIDS Treatment Research Initiative</i>	Serum, plasma, cells and cultured cells, supernatant from PBMC, plasma HIV cultures		
National Neurological Research Specimen Bank	Tissue specimens and CSF and blood collected from more than 11,000 cases Includes brain, spinal cord, pituitary glands, thymus, spleen, eyes, and lymph nodes	Confirmed diagnosis Demographic data	Tissue specimens distributed to approved investigators only Acknowledgment of the bank is required Shipping costs must be paid
UCSF AIDS Specimen Bank	>76,000 specimens Serum, tissue, saliva, CSF from HIV-infected individuals		

Table C.1- continued

Tissue Group/ Resource	Number of Specimens/ Tissue Type(s)	Other Data	Limitations
Tissue Procurement Shared Resource at Ohio State Uni- versity Comprehensive Cancer Center (CCC)	Handled >75,000 specimens (avg. 3,000/yr) Investigators can request remnant surgical or autopsy tissue by filling out request form	Pathology report	Application approval requires approved human subjects IRB Costs for CCC full members- \$5/specimen, CCC associate mem- bers- \$8/specimen, CCC non- members- \$10/specimen Single chart review- \$25 Histology Q.C.- \$7.85/tissue
LifeSpan BioSciences, Inc.- Tissue and Disease Bank	1,000,000 normal and diseased human samples >175 different types of tissue from almost every organ, covering all ages >1,500 different pathologic disease categories	Pathologic report and result from requested test	LifeSpan does not sell its tissue per se but performs custom services using its tissue bank Cost varies according to services requested
PathServe- Autopsy and Tissue Bank	Collects all types of organs and tissues includ- ing specimens from placental and fetal origin Has ~300 specimens stored at any one time (does not maintain a central storage facility but instead stores samples in morgues in dif- ferent hospitals) distributed ~30,000 specimens last year	Limited medical history	Tissue may be unsuitable for RNA Iso- lation due to degradation Recipient will use tissue for scientific/medical research only No distribution of tissues to third par- ties Costs are adult brain- \$320, adult brain (cut)- \$90, spinal cord- \$240, heart- \$320, tissue section (internal organs)- \$240, artery- \$59, pla- centa- \$89, fetus- \$290, fetal brain- \$250, skin- \$270, pericardium- \$270, dura matter- \$79, eyes (pair)- \$240, temporal bones- \$100, formalin-fixed block- \$97

Table C.1- continued

Tissue Group/ Resource	Number of Specimens/ Tissue Type(s)		Other Data	Limitations
	Tissue specimens are collected per investigator needs (tumor specimens may be stored and frozen if no immediate need exists)	Specific clinical and/or demographic data are made available		
Resource for Tumor Tissue and Data- NYU Medical Center	Specimens can be snap-frozen or fixed; tissue paraffin blocks also available	Pathology reports	Unused sections of paraffin blocks must be returned upon completion of the study	
Musculoskeletal				
National Temporal Bone, Hearing and Balance Pathology Resource Registry	>12,000 temporal bone and brain tissue specimens from more than 6,300 cases of hearing and balance disorders	Demographic data Processing data Clinical and histopathological diagnosis	Only the 26 collaborating temporal bone laboratories have access to bone specimens	Researchers wishing to use bone specimens must contact the lab director and discuss their intentions
<i>Baylor College of Medicine</i>	1,040 temporal bones from 1,040 cases			
<i>Bowman-Gray School of Medicine</i>	1,074 temporal bones from 1,075 cases			
<i>The Eye & Ear Institute of Pittsburgh</i>	1,385 temporal bones from 826 cases			
<i>Goodhill Ear Center at UCLA School of Medicine</i>	1,000 temporal bones from 500 cases; 10 brain specimens			
<i>House Ear Institute</i>	1,256 temporal bones from 2,008 cases; 72 brain specimens			
<i>Kresge Hearing Research Institute—University of Michigan</i>	60 temporal bones from 65 cases; 4 brain specimens			
<i>Johns Hopkins University</i>	3,520 temporal bones from 3,522 cases; 2 brain specimens			

Table C.1- continued

Tissue Group/ Resource	Number of Specimens/ Tissue Type(s)	Other Data	Limitations
<i>Massachusetts Eye and Ear Infirmary</i>	1,518 temporal bones from 862 cases		
<i>Mount Sinai School of Medicine</i>	Not reported		
<i>New York University</i>	300 temporal bones from 300 cases		
<i>SUNY Health Science Center—Syracuse</i>	198 temporal bones from 162 cases		
<i>University of Chicago</i>	1,600 temporal bones from 771 cases; 293 brain specimens		
<i>University of Iowa Hospitals and Clinics</i>	818 temporal bones from 818 cases		
<i>University of Minnesota</i>	1,694 temporal bones from 946 cases		
<i>University of Texas Southwestern Medical Center</i>	Temporal bones from 137 cases		
Other Biological Materials (Cells, DNA, RNA, protein)			
NIH AIDS Research and Reference Reagent Program (AIDS Reagent Program)	>1,400 reagents available, including HIV and related viruses, opportunistic infectious agents associated with HIV infections, DNA libraries, DNA clones, antibodies, purified proteins, synthetic peptides, and body fluids		Any commercial use requires written permission and compensation of reagent donor(s) and notification of the AIDS Reagent Program; investigators must register with NIH AIDS Research and Reference Reagent Program
			Investigator pays shipping costs

Table C.1- continued

Tissue Group/ Resource	Number of Specimens/ Tissue Type(s)	Other Data	Limitations
Indiana Alzheimer Disease Center National Cell Repository	Genetic material from more than 2,200 individuals from 440 families with histories of Alzheimer's disease (both lymphocytes and DNA are available from most participants)	Family pedigrees	Asked to cite IADC National Cell Repository Researchers may not transfer cells or DNA to third parties Materials received from IADC National Cell Repository may not be used for commercial purposes
Human Genetic Mutant Cell Repository (Coriell Cell Repositories)	Contains both DNA and cells from human and animal cultures, normal controls, inherited disorders and normal variants, NIGMS extended family collections		Recipient agrees not to try to identify or contact submitter of sample or the donor subject from whom the cell line or DNA is derived; products derived from human cell cultures and DNA samples from HGMCR may not be sold or distributed with or without charge to third party Acknowledgment of repository in pub- lications is required Costs are cell cultures- \$75, human DNA- \$50, hybrid DNA- \$150

Table C.1- continued

Tissue Group/ Resource	Number of Specimens/ Tissue Type(s)	Other Data	Limitations
NIA Cell Repository (Coriell Cell Repositories)	Cell cultures from aging syndromes, Alzheimer's, normals, fibroblasts from aged sibling pairs, other cell types, animal cells	Each shipment includes a computer generated infor- mation sheet describing cell culture	Recipient agrees to obtain written permission of submitter and U.S. government before commercializa- tion of cell lines or any products; cell cultures obtained cannot be resold, or distributed free of charge, but they may be replicated by a third party for the original purchaser Costs are T25 flask- \$75 (for larger orders, first 75 are \$75 and each additional culture is \$25)
ADA Cell Repository Maturity Onset Diabetes Collection	DNA samples and phenotypic data from Phase I and II of the ADA's GENNID study- data on 170 pedigrees with a total of 650 affected individuals and approximately 1,200 subjects	Data set includes multiple metabolic factors as well as lifestyle variables	
American Tissue Culture Collection	Cell cultures from human, animal, and hybridomas	Basic description of cell cul- ture (where derived, geno- type, growth conditions)	Cost depends on type of cell culture (\$50- \$150) plus shipping and han- dling